



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/674,908

09/30/2003

Evon Llewellyn Crooks

030627/267420

9006

826

7590

05/31/2006

ALSTON & BIRD LLP
BANK OF AMERICA PLAZA
101 SOUTH TRYON STREET, SUITE 4000
CHARLOTTE, NC 28280-4000

EXAMINER

LAZORCIK, JASON L

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,908

Applicant(s)

CROOKS ET AL.

Examiner

Jason L. Lazorcik

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/30/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/27/2004</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: IDS Filed: 09/30/2004, 05/05/2005, & 08/04/2005. .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 through 3 and 14, 15, and 17 through 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Pera (US 2002/0148478 A1). In brief, Pera discloses multi-segmented, dual stage filter for mainly designed for removing free radicals from tobacco smoke.

Specifically regarding Claim 1, Pera teaches a design for a cigarette comprising a tobacco rod (8) and a filter element (1) (See excerpt Figure 6) wherein said filter element has an end proximal to said rod and an end distal to said rod.

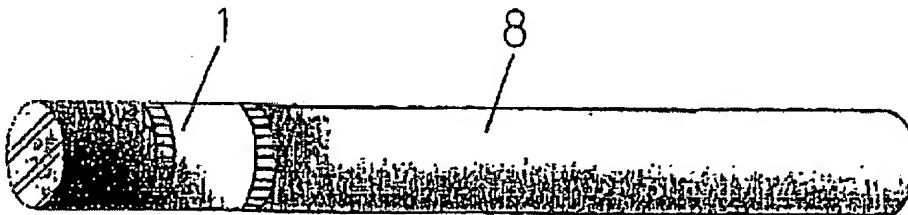


fig. 6

Pera continues with a detailed description of the filter element (1) by disclosing the following (pg 10, ¶ [0189] and excerpts Figure 2 and 3 below);

"The two chambers (2,3) are separated from each other by a partition of cellulose acetate (4)...the second chamber (2), separated from the first one, comprises a cellulose acetate filtering material, consisting of non-toxic absorbent minerals...The two chambers are further isolated from the external environment at their ends by two partitions of cellulose (5,6), realized with the same material of the central one (4)."

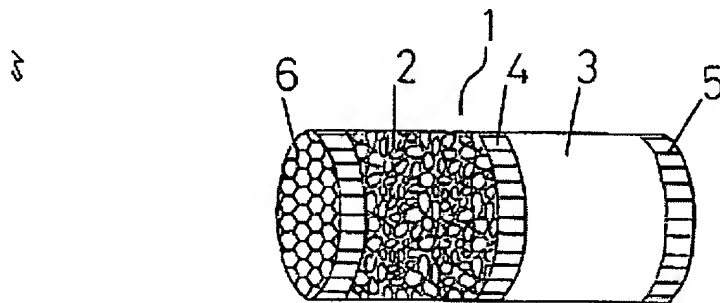


fig. 2

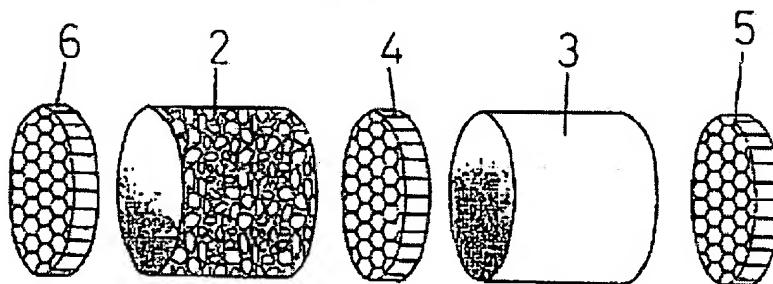


fig. 3

The related structure (in reference to the above figures) is read on the immediate claim where the cellulose acetate segment (5) is held equivalent to "a first longitudinally extending section of filter material positioned at the end of the filter element (1) proximal to the tobacco rod (8)." Similarly, the cellulose acetate segment (6) is held equivalent to "a second longitudinally extending section of filter material positioned at the end of the filter element distal from the tobacco rod (8) and spaced apart from said first section of

Art Unit: 1731

filter material (5).” Further, the combined volume defined by sections (2), (3), and (4) is considered equivalent to the claimed compartment defined between filter material sections (6) and (5). The cellulose acetate partition (4) is held equivalent to “a semi-permeable barrier dividing said compartment into a first region “ defined by chamber (3) “adjacent to said first section of filter material (5)” and “a second region” defined by chamber (2) “adjacent to said second section of filter material (6)”. Further, Pera’s reference to an absorbent mineral in the second chamber (2) obviously reads on the immediate claim of “an adsorbent material contained within said second region of said compartment.”

Claims 2 and 3 are clearly anticipated by Pera’s disclosure that the partitions of the above structure (4,5,6) are all preferably realized from cellulose acetate (pg 10, ¶ [0189]). Specifically Pera’s teaching is read on Claim 2 as independently selecting “the first and second sections of filter material” from among the group of acceptable filter materials including cellulose acetate tow and gathered cellulose acetate web. In the immediate context, each of cellulose acetate tow and gathered cellulose acetate web are held equivalent to cellulose acetate as referenced by Pera. Further with respect to Claim 3, Pera’s use of cellulose acetate for filters (4), (5), and (6) is understood as functionally equivalent constructing said filters from the claimed filter material comprising plasticized cellulose acetate tow.

Regarding claim 14, the immediate reference indicates (pg 9, ¶ [0168]) that the mineral composition contained in the second chamber (2) comprises activated carbon

Art Unit: 1731

which obviously reads on the present claim as selecting one absorbent from among the cited acceptable group of adsorbents which includes activated carbon.

Claim 15 is clearly anticipated in light of the Claim 14 rejection laid forth above.

With respect to Claim 17, Pera clearly [pg 10, ¶ [0174] indicates that the activated carbon absorbent contained in section (2) is to be of a particulate or equivalently "granular" form.

Further regarding Claim 18 the immediate reference indicates that the activated carbon particles are to be between 8 and 50 mesh by the U.S. Series Number which reads directly on the claimed particle size of "about 8x16 mesh to about 30x70 mesh."

Regarding Claim 19, Pera clearly indicated that the "semi-permeable barrier" (4) is fabricated from cellulose acetate which is among the cited acceptable construction materials including cellulose acetate tow and gathered cellulose acetate web. As previously indicated, each of cellulose acetate tow and gathered cellulose acetate web are held equivalent to cellulose acetate as referenced by Pera.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

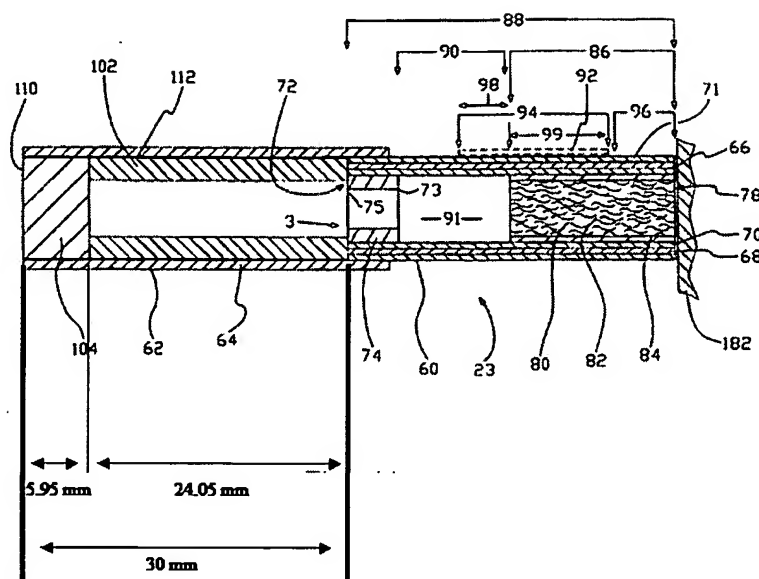
Art Unit: 1731

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1, 4 through 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Counts (5,629,525) in view of Zhuang (US 6,814,786 B1) and Yang (US 2004/0226569 A1).

Counts teaches a multi-segment comprising a mouthpiece filter plug (104), tubular free flow filter element (102), and tubular free flow filter (72). Counts continues by disclosing several dimensions including (Column 8, Lines 38-40) that the combined length of the mouthpiece filter (104) and free-flow filter (102) is preferably 30mm and that the tipping paper (62) extends approximately 6 mm over the tobacco rod (60). It is therefore obvious from the immediate reference Figure 4a that the filter elements (104) and (102) have length dimensions of approximately 6mm and approximately 24mm, respectively. Further, since the tubular free flow filter (72) is longer than the portion of the tipping paper which extends over the tobacco rod, the length of said filter is at least 6mm but less than 12mm as evidenced from the figure.



While Counts does not disclose the incorporation of an absorbent or hollow section, both Zhuang and Yang disclose modifications with specific reference to the Counts multi-segment filter structure described above.

Zhuang teaches a filter for incorporation into a smoking article which includes at least two monolithic sorbent segments and a mixing segment disposed between the sorbent segments. The following excerpt Figure 1 from the immediate reference depicts a filter (30) comprising sorbent segments (32) and a hollow mixing region (37) defined by the sorbent segments. Zhuang further teaches (Column 7, Lines 4-6) that the length of the sorbent segments L is preferably less than about 5mm and more preferably from about 0.5mm to about 2mm.

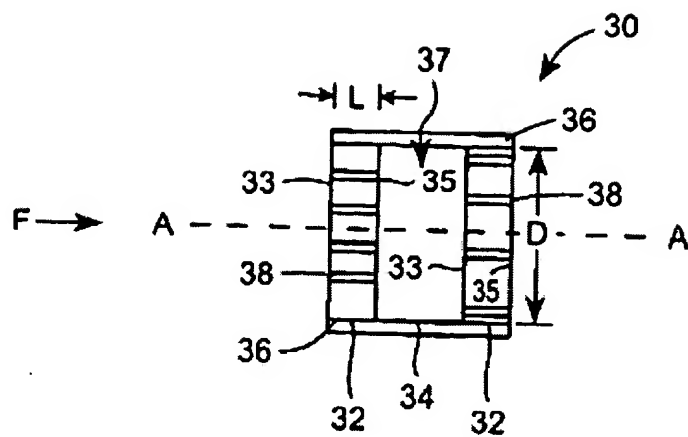


FIG. 1

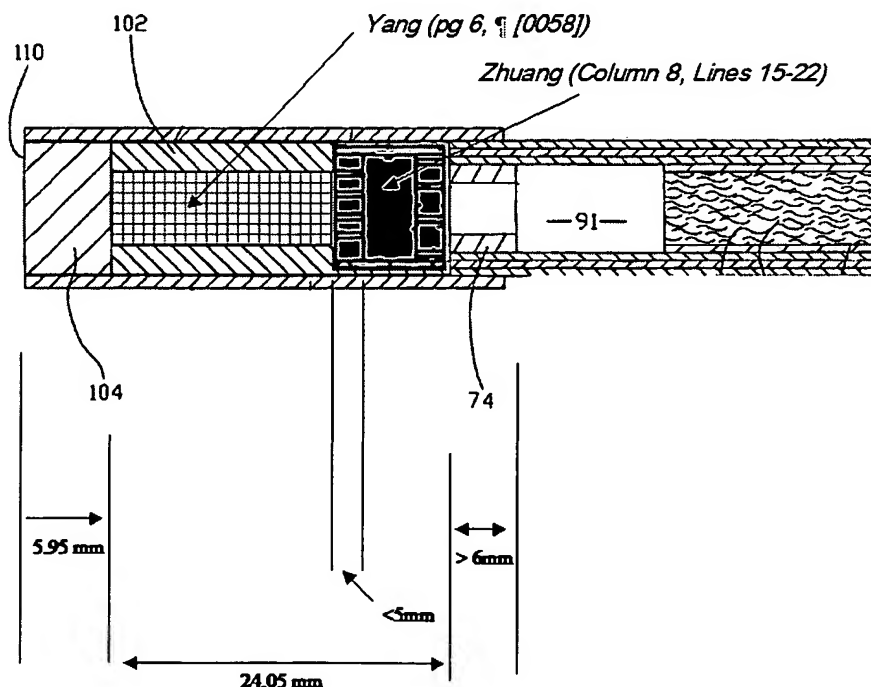
Referring specifically to the Counts multi-segment filter (see immediate reference figure 15), Zhuang teaches (Column 14, Lines 16-21) that the "filter (30) can be...substituted **as part of**, or in place of the tubular free-flow filter element (102)." Zhuang teaches (Column 4, Lines 1-3) the mixing region (37) of filter (30) promotes the mixing of gas that has passed through one monolithic sorbent segment before entering an adjacent sorbent segment. Further, this mixing region can increase gas recombination to enhance the filtration selectivity.

Yang teaches the preparation of a flavored carbon useful as a filtering material in a cigarette in order to impart desired taste while removing one or more components from mainstream smoke. Specifically, the activated carbon comprises granulated carbon (pg3, ¶ [0031]) having particles in ranging in size from about 6 mesh to about 70 mesh. Again with specific reference to the Count multi-segment filter, Yang teaches (Pg 6, ¶ [0058]) that the flavored carbon particles can be incorporated in various ways such

Art Unit: 1731

as by being loaded onto paper or other substrate material which is ***fitted into the passageway of the tubular free-flow filter element (102).***

The composite structure displaying the Counts filter modified as taught by Zhuang and Yang is presented below and is hereafter referred to as the Modified Counts Filter (MCF). Specifically, it would have been obvious to one of ordinary skill in the art to substitute a portion of the free flow filter element (102) with filter (30) as taught by Zhuang in order to increase the filtering selectivity of the multi-segment filter. Further, it would have been obvious to one of ordinary skill in the art to additional modify the Counts filter by filling the remaining portion of the free-flow filter element (102) with flavored activated carbon particles as taught by Yang in order to selectively remove one or more components from and add flavor to the mainstream smoke.



Regarding Claim 1, the Modified Counts Filter (MCF) incorporates a tobacco rod and filter element here defined as the collective elements (104), (102) as modified by Yang and Zhuang, (30), and (74). The mouthpiece filter plug (104) and tubular free flow filter (72) are understood to be equivalent to the claimed second and first sections of fibrous filter material, respectively. The volume defined by elements (102) and (30) is understood to be equivalent to the claimed compartment. Sub-element (32) of filter (30) is held equivalent to the claimed semi-permeable membrane and acts to effectively subdivide the compartment into a first region (37) and the second region (102) which contains an adsorbent material.

Regarding Claim 20, the MCF incorporates a tobacco rod and filter element here defined as the collective elements (104), (102) as modified by Yang and Zhuang, (30), and (74). The mouthpiece filter plug (104) and tubular free flow filter (72) are understood to be equivalent to the claimed second and first sections of fibrous filter material, respectively. The volume defined by elements (102) and (30) is understood to be equivalent to the claimed compartment. Sub-element (32) of filter (30) is held equivalent to the claimed semi-permeable membrane and acts to effectively subdivide the compartment into the hollow region (37) and the second region (102) containing a granular adsorbent material.

With reference to the annotated dimensions in the MCF figure above, Claims 4 through 13 are rendered obvious.

Art Unit: 1731

Specifically regarding Claim 4, the overall length of the filter element MCF [(104), (102), (30), and (74)] is approximately 36mm which is intermediate between the claimed overall filter length of about 15 mm and about 65mm.

Regarding Claim 5, the overall length of the filter element MCF [(104), (102), (30), and (74)] is approximately 36mm which is intermediate between the claimed overall filter length of about 15 mm and about 50 mm.

Regarding Claim 6, the length of the second (104) and first (72) sections of filter material is approximately 6mm and approximately 6 to 12mm, respectively, which is intermediate between the claimed length of said sections of about 5 mm and about 25 mm.

Similarly with respect to Claim 7, the length of the second (104) and first (72) sections of filter material is approximately 6mm and approximately 6 to 12mm, respectively, which is intermediate between the claimed length of said sections of about 5 mm and about 15 mm.

Regarding Claims 8 and 9, it is well known that pressure drop increases along a packed bed in accord with increasing bed length. It would be obvious to one of ordinary skill in the art to optimize the length of the adsorbent-containing region (102) in order to optimize the resulting pressure drop during a draw in order to provide the desired resistance to draw.

Regarding Claim 10, the length of the compartment defined by (102) and (30) is approximately 24 mm which is intermediate between the claimed compartment length of about 10 mm and about 50 mm.

Similarly regarding Claim 11, the length of the compartment defined by (102) and (30) is approximately 24 mm which is intermediate between the claimed compartment length of about 10 mm and about 30 mm.

With respect to Claim 12, the length of the semi-permeable barrier defined by length L above is given as preferably less than about 5mm and more preferably from about 0.5mm to about 2 mm which reads directly on the claimed barrier length of between about 1 mm and about 10 mm.

Regarding Claim 13, the length of the semi-permeable barrier defined by length L above is given as preferably less than about 5mm and more preferably from about 0.5mm to about 2 mm which reads directly on the claimed barrier length of between about 1 mm and about 5 mm.

Regarding claim 14, the chamber (102) of the MCF incorporates granulated, activated carbon with a particle size in the range 6 to 70 mesh of which obviously reads on the present claim as selecting one adsorbent from among the cited acceptable group of adsorbents which includes activated carbon.

Claim 15 is clearly anticipated in light of the Claim 14 rejection laid forth above where the adsorbent is activated carbon.

Claim 17 is clearly anticipated in light of the Claim 14 rejection laid forth above where the adsorbent is granular in form.

Claim 18 is clearly anticipated in light of the Claim 14 rejection laid forth above where the adsorbent has a particle size in the range of about 8x16 mesh to about 30x70 mesh.

Art Unit: 1731

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pera in view of Degel 1990. Pera teaches that the activated carbon utilized in the disclosed invention has a specific surface area in excess of 5 million square centimeters (500 m^2) per gram of material. Pera does not teach that the activated carbon has an activity of about 60 to about 150 Carbon Tetrachloride Activity. Degel however asserts that the pore volume distribution (and therefore specific surface area) is an important variable that affects carbon performance. Further, Degel (see table) displays a clear positive relationship between the surface area of activated carbon and the Carbon Tetrachloride Activity of said activated carbon. It would have been obvious to one of ordinary skill in the art to optimize the surface area and thus the Carbon Tetrachloride Activity of the activated carbon incorporated in a cigarette filter to optimize the filtering performance of said filter.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700